

Long Sit - E

1/2 sit - wt. of body on 1 side.

Spring-Sit - 1 L. bknd & sit fwd.



## Deformities

A deformity is an acquired or congenital fault of position in the skeletal or motor apparatus i. e. - spinal curvature, flat foot or club feet. In these there is found as a rule shortening of certain mus. & soft parts & lengthening & weakening of their antagonists. In most cases especially if the deformity has lasted for any length of time changes in the shape of bones are found. Beside the obvious & sometimes sensibly attenuated deformities are frequently accompanied by functional changes, esp. in motor apparatus which are very troublesome to the patient.

In treatment of deformity the first principle is to restore faulty position to normal but in addition to this the P. must endeavor to maintain the correct position & to regain power by ex. of the normal function. To restore faulty position (to normal) correcting movements are used even in the slightest cases - these ex. produce strong, long continued, stretching & shortening of m. & other soft parts. In more severe cases special orthopedic apparatus <sup>is used.</sup> Sometimes a forced correction with or without cutting of soft parts & crushing & re-molding of bony parts. (Not in scope of physical gymnast.)

Active mov. with strong M. work. is used for those m. which are lengthened by deformity.



To train normal functional power the normal movements of the part are practised, maintaining the correct position as far as possible.

### Postural Activity.

Herington - demonstrated that the upright posture depends upon reflex muscular activity - this activity is a reflex dependent upon nervous impulses from the muscles themselves, and has been demonstrated only in those mus. which are constantly resisting the influence of gravity - it can be maintained for long periods without fatigue.

Bankroft - He teaches that this reflex may be inhibited by overwork, worry or other mental forces & that it is to this failure of postural act. that such static deformities as scoliosis - kypholordosis, flat foot & knock knee are sometimes due. The object of gym. treatment in this type of case is to re-educate the postural reflex by means of simple free ed.

### Examination of Posture

1. Place P. in front of good light - back to window.
2. Back uncovered.
3. After back is examined, do front, turning to light & notice normal posture then ask for covered pos.
4. Take note of ft - flat feet, knock knees.
5. When examining, take notes.



Faulty habitual position is the commonest cause of lateral curvature. The Unequal weighting which thus arises acts on the bones, mus. & lig. (lig. which hold up T. & produce this curvature) Accliosis during teen ages. And esp. at period of puberty. The rapid growth of all parts of the body esp. the legs during this period increases the liability to deformity. If one watches the development of such curvature one finds that the body at first resumes a symmetrical <sup>pos.</sup> in time free from work. After a time m. begin to accommodate themselves to the crooked position and become lengthened & shortened respectively as this takes place. The postural reflex is lost & the P. no longer realizes that her position is crooked & doesn't attempt to correct it, unless she receives treatment the deformity is liable to become fixed and structural changes take place. Phy. Gym. can do much to help 1. be observant of pupils in her care 2. mild cases corrected early & 3. early structural cases of deformities should be sent 2 a doc who in turn will send P. to proper places to be treated.

#### Causes of Postural Scoliosis.

1. Habitual faulty positions
2. Lack of postural tone.
3. Bad positions during school hrs.
4. Position of lights in school room.
5. Heredity.
6. Child may be liable to developed Scol.



derived

Crook Lying - <sup>with</sup> pelvis raised

Crook Lying

Leg Lift Lying -

Sit Lying -

Half Lying - low plinth

Stn. by h. apart

Prone or Forward Lying - face downwards fully supported on plinth.

Arch Lying - Taken from prone & arch.

Leg Forward Lying - kneeling on high plinth.

Arch Leg Forward Lying - same as ? but arch down & up.

Side Lying - on 1 side arm bent under body

(Move patient slightly over)

Leg Side Lying - Hip support.

Positions derived from Hanging

Crook Hanging - P hangs with B & wall bars in  
1 setting with N.L. at hips & knees.

Abdominal muscles.

1/2 Crook Hanging - just 1 leg raised. Change pos. of T.



Kyphosis often associated w. lordosis. Both may be due 2 lack of postural reflex. The morbid changes in Kyphosis the ligo. & Mus. running in a longitudinal direction at the back of the spine & the chest become lengthened & stretched. In round shoulders the transverse mus. on back of chest esp. shoulder mus. become lengthened, those on front of C. - the pectorals are shortened. The bal. betw. 2 sets of mus. is disturbed. In old stony cases the curves of clav. are prominent.

#### Causes -

1. Old age - mus. & ligo yield 2 wt. of B.
2. Failure of postural reflex.
3. Occupation in fwd. lean. post. - studying etc.
4. If m. on fr. of C. are chiefly used it will also lead 2 round shoulders.
5. Faulty clothing - 2 narrow or 2 short in front.
6. Defective sight & adenoids.

#### Treatment -

In teaching Child - see clothes fit properly. P. work esp. school work, should be supervised & faulty post. corrected. Gym. treatment follows gen. lines & treatment of deformities & includes re-ed. of postural defects. Correct post. of B's head. P's gen. Hth should have attention & any other phy. Hth defect corrected. To counteract Kyphosis we give strong, long, passive stretchings.



Hang. a ly. with cushion in Bk. Mount.  
w act. with in strong shortening in  
inner range of mount. (4 long M. in bk.)

Stick. stp. grip. sitt. - Holding.

2 counteract round shoulders - 1. Passive  
stick. for C. mus. Known as chest expansions  
usually given w. breath. 2. Heave grip st.  
Heav. grip. st. fwd. drawing. 2. Mounts w strong  
act. with in shortening for post. mus. of  
scap - Rhomboids. - Rh plane A carrying.

3. Mounts in Heave post. -  
5. Counteract by a  
back fwd. by.

Use mounts w. discrimination. → L.C.P. -  
(gen. corrective post.)

1. Heave grip. st. - ch. expansion.

2. High rck. grip. st.

3. L. skwd draw.

4. Hang. w. cushion in bk. - Hg. on stall bar.

5. Yd. L. fwd. ly. - dbl. plane A's

6. High Hg. - neck raise. (carrying)

7. Wg. - plane twisting.

8. High L. forward ly. - holding.

9. Wg - L. lean - st. st.

10. T. rolling.

11. Stick. grip. stp st. - holding. (breathing)

12. Stick. sitt. 2 S. bend. & stick.

13. Hg. - L part. & clo.

14. Stick. grip. st. - fwd. add. draw. - finish  
w P. ly. in cck. post. w or w out a cushion

15. Stick. L. fwd. ly.



Kyphosis angularis - Disease of bone - caused by T. B., acute arthritis in that region.

### Kordosis -

Pelvis forward - curvature of lumbar vertebrae.  
 $55^{\circ}$  -  $60^{\circ}$  from  $\perp$ . Mus. & lig. back of spine tight. Shortening of flexors of hips with lengthening of Ham strings. Failure of postural reflex <sup>in L. region</sup>. Weaknesses of Abd. Mus. Over ex. of back Mus. Over treatment in children of kyphosis. Excessive practice of low arch position. Habitual wearing of high heel.

### Treatment -

1. Teach correct idea of normal posture. Walk correctly. How to contract slack mus.
2. How to extend hips with kns. flexed.
3. H. slightly inverted.
4. Passing stretching to mus. & lig. of spine.
5. Short, vigorous stretchings - fwd. dwd. bend. <sup>(sitt.)</sup>
6. Long continued stretchings - Stnd. grasp bk sitt.
7. Also - sitt. when Ham strings stretched.
8. Long. ... short (knee & saving)
9. Act. work in strong shortening of stretched mus.

### Scheme I

1. Ab. L. up. draw. in short sitt.
2. " " down press. (Concentric work) by.
3. <sup>act</sup> Ky. T. rais. (Repetitive.) - blood to abd. These must be counteracted by depletive ex.
4. If H. S's lengthened - Fwd. by. K. bend. (con & eccentrically)
5. L. fwd. by. - holding.



### Scheme II

1. Stick. sitt. - db A bend & stick.
3. " grasp. cik sitt - holding.
4. Short sitt db L updraw.
- 2 1/2 sitt K. bend & stick.
5. Heave grasp - stp stride sitt. - all translation.
6. L. fwd. by. - holding.
7. High side sitt. - T. roll.
8. Yd. long sitt - R A. upw carry.
9. Yd. ~~st~~ upw. lift & dwd. press
10. Yd. stp stride sitt - db Plane A. carry.
11. High side sitt - C expansion.

Between movs. other mov. - Hewing & saw &  
H.C.P.

### Resting Position

1. Cik by - A - M. rest.
2. Lf P. Kyphosis also - stick. grasp - long sitt.  
M. rais. (start with Chin on Chest)
3. Hang. w. cushion in B.



## Flat Foot

- 1) mobile - treated by gymnast.
- 2) spastic wt. " " " "

Inverters stretched  
Everters shortened

Arches - 1. Transverse - ball of foot.  
2. longitudinal - length of foot

Good ex for faulty transverse arch = pick up pencil between 4<sup>th</sup> & 2<sup>nd</sup> 3<sup>rd</sup> toes

Knock knees often go with f.f. Inside of shoe sole will be worn. Take outline of foot by wetting foot & stamping on paper.

Bad walking with more wt. on 1 foot than another - Strained foot

From Pologo - Infantile

### Treatment -

If due to overweight, bearing try to reduce wt. by diet. Also ex. If too fat get them to sit for 1 hr.

If due to long walking or standing try to sit on stool for at least  $\frac{1}{2}$  hr.

Avoid strapping yourself - Let Doc.

### Exercise -

If treatment acute - complete rest. No treatment by gymnast. Sub. active or home

Ex of

1. Examine.
2. Comfortable shoes & decent socks.
1. Breathing.
2. Rem. Ex.  $\frac{1}{2}$  hr on side - N. bed & stool.
3. Leg Ex - to increase circulation - cycling.